IN THE CLAIMS:

1-2. (canceled)

3. (previously presented) A method of determining the optical characteristics of a dental object, comprising the steps of:

positioning a probe in proximity to the dental object;

taking a plurality of optical characteristics measurements of the dental object with a color measurement system, wherein light received by the probe from the dental object is coupled to the color measurement system, wherein the color measurement system includes at least a processor and a memory;

storing data resulting from the plurality of optical characteristics measurements in the memory;

analyzing the stored data resulting from the plurality of optical characteristics measurements with the processor, wherein the processor analyzes whether the probe was moved with respect to the dental object between one or more of the plurality of optical characteristics measurements; and

based on the analysis of whether the probe was moved with respect to the dental object, selectively generating optical characteristics data representative of the optical characteristics of the dental object or rejecting the plurality of optical characteristics measurements.

4. (previously presented) method of claim 3, wherein the processor analyzes whether probe was held perpendicular to the dental object.

5. (previously presented) The method of claim 3, wherein the processor analyzes whether the probe was moved in an angularly or laterally with respect to the dental object.

6. (previously presented) The method of claim 3, wherein the method further comprises the step of taking a measurement of a calibration standard.

7. (previously presented) The method of claim 3, wherein the color measurement system measures light returned from the dental object in a plurality of spectral bands.

8. (previously presented) The method of claim 3, wherein the color measurement system operates with audio feedback, wherein the audio feedback guides a user's operation of the color measurement system.

9. (previously presented) The method of claim 3, wherein the optical characteristics data are stored in a database, wherein the optical characteristics data are generated a plurality of times for a plurality of dental objects to generate a plurality of optical characteristics database records.

10. (previously presented) The method of claim 9, wherein the database records are associated with particular patients.

11. (previously presented) The method of claim 9, wherein the database records store pictures of the dental objects.

12. (previously presented) The method of claim 11, wherein the pictures of the dental objects comprise images of the dental objects captured with a camera.

13. (previously presented) The method of claim 3, wherein the optical characteristics data are generated a plurality of times for the dental object, wherein a database stores a historical record of the optical characteristics of the dental object.

14. (previously presented) The method of claim 3, wherein a second dental object is produced based on the optical characteristics data.

15. (previously presented) The method of claim 14, wherein optical characteristics of the second dental object are determined prior to installation of the second dental object in a patient's mouth.

16. (previously presented) The method of claim 15, wherein the optical characteristics of the second dental object are determined with the color measurement system or a second color measurement system.

17. (previously presented) The method of claim 15, wherein the optical characteristics of the second dental object are determined at a location where the second dental object is produced.

18. (previously presented) The method of claim 17, wherein the optical characteristics of the second dental object are determined with a second color measurement system.

19. (previously presented) The method of claim 15, wherein the optical characteristics of the second dental object are determined at a location wherein the second dental object is to be installed in the patient's mouth.

20. (previously presented) The method of claim 19, wherein the optical characteristics of the second dental object are determined with the color measurement system.

21. (previously presented) The method of claim 14, wherein the second dental object comprises a denture, a dental prosthesis, a filling, a tooth-colored filling, or a composite filling.

22. (previously presented) The method of claim 14, wherein the second dental object is produced based on a porcelain recipe determined in accordance with the optical characteristics data.

23. (previously presented) The method of claim 3, wherein the optical characteristics data are electronically transmitted to a remote location, wherein a second object is produced at the remote location based on the transmitted optical characteristics data.

24. (previously presented) The method of claim 23, wherein the electronic transmission comprises a modem transmission.

25. (previously presented) The method of claim 23, wherein the electronic transmission includes a transmission of a picture of the dental object.

26. The method of claim 25, wherein the picture of the dental object comprises an image of the dental object captured with a camera.

27. (previously presented) The method of claim 3, wherein the optical characteristics data are stored in a database, wherein the database includes date and time information associated with the optical characteristics data.

28. (previously presented) The method of claim 3, wherein the optical characteristics data are stored in a database, wherein optical characteristics data indicative of the optical characteristics are generated a plurality of times, including at least once for a plurality of regions of the dental object.

29. (previously presented) The method of claim 28, wherein the database stores sectoring information with the optical characteristics data.

30. (previously presented) The method of claim 29, wherein the database stores information corresponding to a pictorial representation of the dental object that includes sector grid lines.

31. (previously presented) The method of claim 3, wherein a material mixing unit receives the optical characteristics data, wherein the material mixing unit prepares constituent materials for a second dental object based on the optical characteristics data.

32. (previously presented) The method of claim 3, wherein a camera captures an image of the dental object, wherein the camera comprises an intraoral camera.

33. (previously presented) The method of claim 3, wherein a camera captures an image of the dental object, wherein the camera comprises a video camera.

34. (previously presented) The method of claim 3, wherein the optical characteristics data are output in the form of a closest match or matches to one or a plurality of sets of stored shade guide values.

35. (previously presented) The method of claim 3, wherein the memory stores data corresponding to a plurality of shade guide systems, each of the plurality of shade guide systems having a plurality of shade guide values, wherein the optical characteristics data are output in the form of a closest match or matches to one or more of the shade guide values in the plurality of shade guide systems.

36. (previously presented) The method of claim 35, wherein the optical characteristics data are output in the form of the closest match to one of the shade guide values in the plurality of shade guide systems.

37. (previously presented) The method of claim 3, wherein the optical characteristics data are used to electronically output a proposed recipe of materials for preparing a second dental object.

38. (previously presented) The method of claim 37, wherein the optical characteristics data are used to electronically output a proposed recipe of materials and instruction information for preparing a second dental object.

39. (previously presented) The method of claim 3, wherein the optical characteristics data are output in the form of one or more sets of color tri-stimulus values.

40. (previously presented) The method of claim 3, wherein an image of the dental object is displayed, wherein data indicative of the color of the dental object in one or more particular regions of the plurality of regions are displayed in an overlaid manner over the one or more particular regions.

41. (previously presented) The method of claim 3, further comprising the steps of:

removably securing a contamination-prevention implement to the probe, wherein light is provided to the dental object through the implement, wherein light received from the dental object

is coupled to the color measurement system through the hole in the implement, wherein the implement is adapted to prevent the probe from contacting the dental object and serves to reduce a risk of contamination; and

taking at least one optical characteristic measurement of a calibration standard with the implement removably secured to the probe, wherein the at least one optical characteristic measurement of the calibration standard serves to calibrate out possible distortion introduced by the implement.

42. (previously presented) A method of determining the optical characteristics of a dental object, comprising the steps of:

positioning a probe in proximity to the dental object;

taking a plurality of optical characteristics measurements of the dental object with a color measurement system, wherein light received by the probe from the dental object is coupled to the color measurement system, wherein the color measurement system includes at least a processor and a memory;

storing data resulting from the plurality of optical characteristics measurements in the memory;

defining an acceptance range for values resulting from the optical characteristics measurements;

analyzing the stored data resulting from the plurality of optical characteristics measurements with the processor, wherein the processor produces measurement values from the stored data and analyzes whether the values resulting from the optical characteristics measurements are within the acceptance range; and

based on the analysis of whether the values resulting from the optical characteristics measurements are within the acceptance range, selectively generating optical characteristics data representative of the optical characteristics of the dental object or rejecting the plurality of optical characteristics measurements.

43. (previously presented) The method of claim 42, wherein the processor analyzes whether probe was held perpendicular to the dental object.

44. (previously presented) The method of claim 42, wherein the processor analyzes whether the probe was moved in an angularly or laterally with respect to the dental object.

45. (previously presented) The method of claim 42, wherein the method further comprises the step of taking a measurement of a calibration standard.

46. (previously presented) The method of claim 42, wherein the color measurement system measures light returned from the dental object in a plurality of spectral bands.

47. (previously presented) The method of claim 42, wherein the color measurement system operates with audio feedback, wherein the audio feedback guides a user's operation of the color measurement system.

48. (previously presented) The method of claim 42, wherein the optical characteristics data are stored in a database, wherein the optical characteristics data are generated a plurality of times for a plurality of dental objects to generate a plurality of optical characteristics database records.

49. (previously presented) The method of claim 48, wherein the database records are associated with particular patients.

50. (previously presented) The method of claim 48, wherein the database records store pictures of the dental objects.

51. (previously presented) The method of claim 50, wherein the pictures of the dental objects comprise images of the dental objects captured with a camera.

52. (previously presented) The method of claim 42, wherein the optical characteristics data are generated a plurality of times for the dental object, wherein a database stores a historical record of the optical characteristics of the dental object.

53. (previously presented) The method of claim 42, wherein a second dental object is produced based on the optical characteristics data.

54. (previously presented) The method of claim 53, wherein optical characteristics of the second dental object are determined prior to installation of the second dental object in a patient's mouth.

55. (previously presented) The method of claim 54, wherein the optical characteristics of the second dental object are determined with the color measurement system or a second color measurement system.

56. (previously presented) The method of claim 54, wherein the optical characteristics of the second dental object are determined at a location where the second dental object is produced.

57. (previously presented) The method of claim 56, wherein the optical characteristics of the second dental object are determined with a second color measurement system.

58. (previously presented) The method of claim 54, wherein the optical characteristics of the second dental object are determined at a location wherein the second dental object is to be installed in the patient's mouth.

59. (previously presented) The method of claim 58, wherein the optical characteristics of the second dental object are determined with the color measurement system.

60. (previously presented) The method of claim 53, wherein the second dental object comprises a denture, a dental prosthesis, a filling, a tooth-colored filling or a composite filling.

61. (previously presented) The method of claim 53, wherein the second dental object is produced based on a porcelain recipe determined in accordance with the optical characteristics data.

62. (previously presented) The method of claim 42, wherein the optical characteristics data are electronically transmitted to a remote location, wherein a second object is produced at the remote location based on the transmitted optical characteristics data.

63. (previously presented) The method of claim 62, wherein the electronic transmission comprises a modem transmission.

64. (previously presented) The method of claim 62, wherein the electronic transmission includes a transmission of a picture of the dental object.

65. (previously presented) The method of claim 64, wherein the picture of the dental object comprises an image of the dental object captured with a camera.

66. (previously presented) The method of claim 42, wherein the optical characteristics data are stored in a database, wherein the database includes date and time information associated with the optical characteristics data.

67. (previously presented) The method of claim 42, wherein the optical characteristics data are stored in a database, wherein optical characteristics data indicative of the optical characteristics are generated a plurality of times, including at least once for a plurality of regions of the dental object.

68. (previously presented) The method of claim 67, wherein the database stores sectoring information with the optical characteristics data.

69. (previously presented) The method of claim 68, wherein the database stores information corresponding to a pictorial representation of the dental object that includes sector grid lines.

70. (previously presented) The method of claim 42, wherein a material mixing unit receives the optical characteristics data, wherein the material mixing unit prepares constituent materials for a second dental object based on the optical characteristics data.

71. (previously presented) The method of claim 42, wherein a camera captures an image of the dental object, wherein the camera comprises an intraoral camera.

72. (previously presented) The method of claim 42, wherein a camera captures an image of the dental object, wherein the camera comprises a video camera.

73. (previously presented) The method of claim 42, wherein the optical characteristics data are output in the form of a closest match or matches to one or a plurality of sets of stored shade guide values.

74. (previously presented) The method of claim 42, wherein the memory stores data corresponding to a plurality of shade guide systems, each of the plurality of shade guide systems having a plurality of shade guide values, wherein the optical characteristics data are output in the form of a closest match or matches to one or more of the shade guide values in the plurality of shade guide systems.

75. (previously presented) The method of claim 74, wherein the optical characteristics data are output in the form of the closest match to one of the shade guide values in the plurality of shade guide systems.

76. (previously presented) The method of claim 42, wherein the optical characteristics data are used to electronically output a proposed recipe of materials for preparing a second dental object.

77. (previously presented) The method of claim 76, wherein the optical characteristics data are used to electronically output a proposed recipe of materials and instruction information for preparing a second dental object.

78. (previously presented) The method of claim 42, wherein the optical characteristics data are output in the form of one or more sets of color tri-stimulus values.

79. (previously presented) The method of claim 42, wherein an image of the dental object is displayed, wherein data indicative of the color of the dental object in one or more particular regions of the plurality of regions are displayed in an overlaid manner over the one or more particular regions.

80. (previously presented) The method of claim 42, further comprising the steps of:

removably securing a contamination-prevention implement to the probe, wherein light is provided to the dental object through the implement, wherein light received from the dental object is coupled to the color measurement system through the hole in the implement, wherein the implement is adapted to prevent the probe from contacting the dental object and serves to reduce a risk of contamination; and

taking at least one optical characteristic measurement of a calibration standard with the implement removably secured to the probe, wherein the at least one optical characteristic measurement of the calibration standard serves to calibrate out possible distortion introduced by the implement.

81. (previously presented) A method of determining the optical characteristics of a dental object with a probe, a color measurement system, and a removably securable contamination-prevention implement adapted for the probe, wherein the color measurement system includes at least a processor and a memory, the method comprising the steps of:

removably securing the contamination-prevention implement to the probe, wherein light is provided to the dental object through the implement, wherein light received from the dental object is coupled to the color measurement system through the hole in the implement, wherein the implement is adapted to prevent the probe from contacting the dental object and serves to reduce a risk of contamination;

taking at least one optical characteristic measurement of a calibration standard with the implement removably secured to the probe, wherein the at least one optical characteristic measurement of the calibration standard serves to calibrate out possible distortion introduced by the implement;

positioning the probe in proximity to the dental object, wherein the implement remains removably secured to the probe;

taking a plurality of optical characteristics measurements of the dental object with the color measurement system;

storing data resulting from the plurality of optical characteristics measurements in the memory;

defining an acceptance range for values resulting from the optical characteristics measurements;

analyzing the stored data resulting from the plurality of optical characteristics measurements with the processor, wherein the processor produces measurement values from the stored data and analyzes whether the values resulting from the optical characteristics measurements are within the acceptance range; and

based on the analysis of whether the values resulting from the optical characteristics measurements are within the acceptance range, and based on the at least one optical characteristic measurement of a calibration standard, selectively generating optical characteristics data representative of the optical characteristics of the dental object or rejecting the plurality of optical characteristics measurements.

82. (previously presented) The method of claim 81, wherein the processor analyzes whether probe was held perpendicular to the dental object.

83. (previously presented) The method of claim 81, wherein the processor analyzes whether the probe was moved in an angularly or laterally with respect to the dental object.

84. (previously presented) The method of claim 81, wherein the method further comprises the step of taking a measurement of a calibration standard.

85. (previously presented) The method of claim 81, wherein the color measurement system measures light returned from the dental object in a plurality of spectral bands.

86. (previously presented) The method of claim 81, wherein the color measurement system operates with audio feedback, wherein the audio feedback guides a user's operation of the color measurement system.

87. (previously presented) The method of claim 81, wherein the optical characteristics data are stored in a database, wherein the optical characteristics data are generated a plurality of times for a plurality of dental objects to generate a plurality of optical characteristics database records.

88. (previously presented) The method of claim 87, wherein the database records are associated with particular patients.

89. (previously presented) The method of claim 87, wherein the database records store pictures of the dental objects.

90. (previously presented) The method of claim 89, wherein the pictures of the dental objects comprise images of the dental objects captured with a camera.

91. (previously presented) The method of claim 81, wherein the optical characteristics data are generated a plurality of times for the dental object, wherein a database stores a historical record of the optical characteristics of the dental object.

92. (previously presented) The method of claim 81, wherein a second dental object is produced based on the optical characteristics data.

93. (previously presented) The method of claim 92, wherein optical characteristics of the second dental object are determined prior to installation of the second dental object in a patient's mouth.

94. (previously presented) The method of claim 93, wherein the optical characteristics of the second dental object are determined with the color measurement system or a second color measurement system.

95. (previously presented) The method of claim 93, wherein the optical characteristics of the second dental object are determined at a location where the second dental object is produced.

96. (previously presented) The method of claim 95, wherein the optical characteristics of the second dental object are determined with a second color measurement system.

97. (previously presented) The method of claim 93, wherein the optical characteristics of the second dental object are determined at a location wherein the second dental object is to be installed in the patient's mouth.

98. (previously presented) The method of claim 97, wherein the optical characteristics of the second dental object are determined with the color measurement system.

99. (previously presented) The method of claim 92, wherein the second dental object comprises a denture, a dental prosthesis, a filling, a tooth-colored filling or a composite filling.

100. (previously presented) The method of claim 92, wherein the second dental object is produced based on a porcelain recipe determined in accordance with the optical characteristics data.

101. (previously presented) The method of claim 81, wherein the optical characteristics data are electronically transmitted to a remote location, wherein a second object is produced at the remote location based on the transmitted optical characteristics data.

102. (previously presented) The method of claim 101, wherein the electronic transmission comprises a modem transmission.

103. (previously presented) The method of claim 101, wherein the electronic transmission includes a transmission of a picture of the dental object.

104. (previously presented) The method of claim 103, wherein the picture of the dental object comprises an image of the dental object captured with a camera.

105. (previously presented) The method of claim 81, wherein the optical characteristics data are stored in a database, wherein the database includes date and time information associated with the optical characteristics data.

106. (previously presented) The method of claim 81, wherein the optical characteristics data are stored in a database, wherein optical characteristics data indicative of the optical characteristics are generated a plurality of times, including at least once for a plurality of regions of the dental object.

107. (previously presented) The method of claim 106, wherein the database stores sectoring information with the optical characteristics data.

108. (previously presented) The method of claim 107, wherein the database stores information corresponding to a pictorial representation of the dental object that includes sector grid lines.

109. (previously presented) The method of claim 81, wherein a material mixing unit receives the optical characteristics data, wherein the material mixing unit prepares constituent materials for a second dental object based on the optical characteristics data.

110. (previously presented) The method of claim 81, wherein a camera captures an image of the dental object, wherein the camera comprises an intraoral camera.

111. (previously presented) The method of claim 81, wherein a camera captures an image of the dental object, wherein the camera comprises a video camera.

112. (previously presented) The method of claim 81, wherein the optical characteristics data are output in the form of a closest match or matches to one or a plurality of sets of stored shade guide values.

113. (previously presented) The method of claim 81, wherein the memory stores data corresponding to a plurality of shade guide systems, each of the plurality of shade guide systems having a plurality of shade guide values, wherein the optical characteristics data are output in the form of a closest match or matches to one or more of the shade guide values in the plurality of shade guide systems.

114. (previously presented) The method of claim 113, wherein the optical characteristics data are output in the form of the closest match to one of the shade guide values in the plurality of shade guide systems.

115. (previously presented) The method of claim 81, wherein the optical characteristics data are used to electronically output a proposed recipe of materials for preparing a second dental object.

116. (previously presented) The method of claim 115, wherein the optical characteristics data are used to electronically output a proposed recipe of materials and instruction information for preparing a second dental object.

117. (previously presented) The method of claim 81, wherein the optical characteristics data are output in the form of one or more sets of color tri-stimulus values.

118. (previously presented) The method of claim 81, wherein an image of the dental object is displayed, wherein data indicative of the color of the dental object in one or more particular regions of the plurality of regions are displayed in an overlaid manner over the one or more particular regions.